HYDROVIEW PRO SERIES MANUAL VERSION 2

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LEGAL DISCLAIMER

The purpose of this manual is to provide HydroView users with a clear understanding of operating procedures. If further information is needed, contact Aquabotix at support@aquabotix.com or 508.676.1000.

website: www.aquabotix.com

Important Safety Instructions

Assemble and use HydroView only as instructed by this manual. Keep this manual in a safe place for future reference.

Read and follow these important safety instructions and the detailed assembly in this manual prior to using the HydroView.

Follow all safety and operational warnings. Heed all additional restrictions on use.

Refer all non-routine service issues to Aquabotix customer service at (508) 676-1000 or support@aquabotix.com.

Safety and Operational Warnings

Assemble HydroView in a safe, dry place. Do not assemble while submerged in water or allow HydroView to get wet before it is fully assembled. Do not assemble with wet hands.

Do not attempt to open the vehicle at any time.

HydroView is powered by a rechargeable Lithium battery pack. Do not attempt to replace these at any time. Contact Aquabotix if the vehicle isn't charging properly. Only Aquabotix and our Authorized Service Centers are authorized to replace the battery pack.

When using topside power to charge your HydroView, use caution to prevent shock or damage.

The HydroView dome must be completely secured with O-ring correctly seated to keep it watertight. The topside box is not waterproof. Do not submerge the topside box in water.

HydroView Pro is meant for depths no greater than 330 feet from the waters surface and distances of 500 feet from the topside box. Do not operate beyond this depth/distance as operational safety is not tested and rated for such depths or distances.

LEGAL DISCLAIMER

Secure all cables on board to prevent tripping hazards. Ensure watertight connector cable is properly secured to the topside box before use.

Be careful of propellers when in use. Do not stick fingers, etc. in or near the propellers.

Do not run the propellers while out of the water, it will damage them.

Additional Restrictions On Use

HydroView is meant for operation only by adults over 18 years of age only.

Keep HydroView out of the reach of children and supervise children and pets when HydroView is in operation.

Do not use HydroView in rain, rough sea conditions and/or storms. Do not use HydroView while underwater machinery is in operation nearby.

Do not allow HydroView to contact underwater marine life or vegetation. Keep HydroView clear of all underwater objects.

Do not expose HydroView to high temperatures above 35° Celsius/ 95° Fahrenheit; avoid prolonged exposure to direct sunlight. Do not leave the carrying case in direct sunlight.

Use HydroView only in the recommended operating water temperature range of 0° Celsius/32° Fahrenheit to 35°Celsius/95° Fahrenheit.

Dropping HydroView or subjecting it to force may damage the vehicle or its watertight dome and propellers. Handle with care.

Be careful of propellers when in use. Do not stick fingers, etc. in or near the propellers.

Failure to follow these important safety instructions and the detailed assembly and use instructions of this manual will void your limited warranty from Aquabotix and may result in serious injury or death. Aquabotix disclaims all liability arising from or caused by the failure to assemble and use HydroView in accordance with this manual, including all important safety instructions.

CHAPTER 1 - Vehicle

The HydroView is an underwater remotely operated vehicle (ROV) that can record live video and capture photos in HD. Using our innovative iPad or laptop applications, you fly the HydroView through the water viewing the live video feed as if you were under the water yourself.

TECHNICAL SPECIFICATIONS

HydroView Pro Technical Specifications

Vehicle Power

Battery (Standard)	2 Packs - Lithium, 15V 10.5 Ah User replaceable 3 Hours Run Time 12 Hours Recharge Time
12V/24V Direct Power (Optional)	Requires 12V @ 30A, or 24V @ 20A DC Indefinite Run Time
110-240 Direct Power (Optional)	Requires 10A Input AC Indefinite Run Time

Mechanical/Physical Characteristics

Motors	Up to 8 Swiss Made High Torque Motors Precious Metal Magnets with 80% Efficiency Model 5M: 2 Thrusters, 3 Hovering/Pitch Model 7M: 4 Thrusters, 3 Hovering/Pitch Model 8M: 2 Thrusters, 1 Lateral, 3 Hovering/Pitch Model 5M with Brushes: 2 Thrusters, 3 Hovering/Pitch, 2 Brushes
Weight	Dry: 13 – 15 lbs. (5.9 – 6.8 kg) (Based on Configuration) Wet: -0.1 lbs. (0.04 kg) (Salt water configuration)
Payload	2 lbs payload capability (Sensors / optional instrumentation)
Dimensions	14.6 in x 19 in x 12 in (37 cm x 48 cm x 30 cm) – W x L x H Fits through 18 in (45 cm) circular hatch
Color (Standard)	Lime Green and Black (Custom colors available)

VEHICLE

Cable (Standard)	250 ft. (75m) Black Thermoplastic Elastomer Pressured 0.5 in. (12 mm) RoHS compliant, hazardous industrial environment
Cable Extensions (Optional)	125 ft (38 m) and 250 ft (76 m) Enables extended operational range

Performance

Speed | Lithium Battery	Up to 4 Knots (7.4 Km/h) forward Up to 2 Knot (3.7 Km/h) reverse
Speed | Direct Power (Optional)	Up to 3 Knots (5.6 Km/h) forward Up to 1 Knots (1.8 Km/h) reverse
Depth	330 ft. (100 m) cable dependent – Standard Custom depths available
Range	250 ft. (75 m) Cable - Standard 350 ft. (106 m) Cable – Optional 500 ft. (152 m) Cable - Optional

Video and Picture

Pictures may be stored on iPad, PC (Windows, Linux or Mac) and Vehicle
Videos may be stored on Vehicle, iPad, PC (Windows, Linux or Mac)

Vehicle Memory Storage (Video and Pictures)	32 GB High Speed – Standard 128/256 GB Solid State Drive - Optional
Camera	720p HD (1280x720), True HD quality 24bit color depth 16:9 Aspect Ratio Widescreen Format 66 degrees diagonal field of view Auto Focus with Manual Focus Override (via app) Automatic exposure control

VEHICLE

External Camera (Optional)	720p HD (1280x720), True HD quality Manual pan/tilt of camera 24bit color depth 16:9 Aspect Ratio Widescreen Format 66 degrees diagonal field of view Auto Focus with Manual Focus Override (via app) Automatic exposure control
VHD Camera (Optional)	Very High Definition Camera Up to 2592×1944 24bit color depth Superior low-light conditions Multiple Aspect Ratio Formats Auto Focus with Manual Focus Override (via app) Automatic exposure control
WAHD Camera (Optional)	Wide Angle Full 1080p HD (1920x1080) 24bit color depth Automatic low-light correction Multiple Aspect Ratio Formats H.264 video compression Manual Focus Override (via app) Automatic exposure control
Lights	10 LED Cool White 260000 mcd (80 Lumens) 6800K Dominant Wavelength On/Off/Intensity controlled through App
High Intensity Lights (Optional)	800 Lumens External Lighting 6800K Dominant Wavelength On/Off/Intensity controlled through App

Vehicle Processing

Processor Board	Super-scalar ARM Cortex-A8 Processor at 1 GHz Cortex C64X+ DSP Core 512MB DDR Ram

VEHICLE

Operating System	Embedded Linux MOOS Open Source Application Environment Developed by Massachusetts Institute of Technology and Oxford University

User Applications	Downloads available through Apple iPad Store and www.aquabotix.com/support.php
iPad App (Free)	HydroView Pro (View and control vehicle, Manage and download videos)
Windows (Free)	HydroView Install (View and control vehicle) Web Media Manager (Manage and download videos)
Mac/Linux (Free)	HydroView jar file (View and control vehicle) Web Media Manager (Manage and download videos)
Auto Pilot	Vehicle Heading, Thrust, Depth, Pitch (Standard) Way points, Patterns (Optional)

Sensors

Orientation Sensor	3 axis attitude sensor (roll/pitch/yaw) Compass heading with respect to true north
Depth Sensor	Provides depth of vehicle in water with 0.25+- % accuracy
Temperature Sensor	+- 0.2 degrees C, Tolerance +-0.32%, 1 sec response
Propeller Covers	Guards vehicle propellers from debris
Buoyancy Management	Weights for adjusting vehicle to local buoyancy environment
Hardened Cable / Power	Cable for commercial applications with topside power configurations

Additional Sensors (Optional)	Oxygen Fluoride pH Turbidity

Carrying Case

Specifications	Waterproof molded ultra high-strength polypropylene copolymer resin with gasket for water and dust tightness. Submersible design spec MIL-C-4150J. Corrosion and impact resistant. Extension Handle.
Size	23 in x 31 in x 17.5 in (58.4 cm x 78.7 cm x 44.5 cm)

User Control Workstation All-inclusive viewing, control and recording station (Optional)

Display	10 in diagonal
Memory	8 GB RAM, 128 GB Storage
Operating System	Windows/Linux
User Interfaces	Keyboard, Touchpad and Joystick
Recordings	User controlled recording of images and movies on vehicle storage, workstation storage, USB thumb drive, or external USB drive
Interfaces	USB, HDMI Video Out, Ethernet Cat5
Battery Charging	For battery configurations, battery charger is embedded
Power Requirements	100-240V AC 10 Amp Supply needed for standard workstation
Carrying Case	Waterproof molded ultra high-strength polypropylene copolymer resin with gasket for water and dust tightness. Submersible design spec MIL-C-4150J. Corrosion and impact resistant.

Topside Box

The topside box produces the Wi-Fi signal that connects to a user supplied iPad or PC/Mac. It is also used to turn the vehicle on/off and recharge the batteries inside the vehicle. The topside box is water resistant but special care should be taken to keep it safely out of the water.

Setting Up the Topside Box

1. Locate the cable connected to the vehicle's body and plug the watertight connector at the opposite end into the topside box.
2. Turn on the power switch located on the topside box. An LED light will indicate that it's on.
3. Although the vehicle has been charged before shipment, it is suggested that you charge it to make sure you have a fully charged battery before taking your vehicle on the water. (See below)
4. Secure the cable to the topside box with the strain relief device attached to the watertight connector cable.

How to Charge Your Vehicle

1. Turn off your vehicle by pressing the off switch located on the topside box.
2. The cable to your vehicle must remain connected to the topside box because the battery pack is located in the vehicle itself.
3. Plug the battery charger into an outlet. Plug the other end into the topside box.
4. A light located on your charger will be solid red when charging and will be solid green when fully charged.

Continuous Power Topside Box - *Optional*

Topside Box with continuous power supply (12V)The topside box produces the Wi-Fi signal that connects to your laptop. It is also used to turn the vehicle on/off. Power is provided by topside via 12V input. 12V power allows the HydroView to be run continuously without the need to recharge the vehicle.

Setting up the 12V Topside Box

1. Locate the cable connected to the vehicle's body and plug the watertight connector at the opposite end into the topside box.

2. Secure the cable to the topside box with the strain relief device attached to the watertight connector cable.

3. Plug the charger adapter from the topside box into the power supply source - A red LED light will indicate that there is power.

BEFORE USING YOUR HYDROVIEW

Important: Before operating your HydroView, always inspect the dome for any **cracks/damages** that may have occurred during transport, storage or use. If you find any sign of damage, contact Aquabotix customer service immediately and do not submerge your vehicle in water. Call 508.676.1000 or email support@aquabotix.com

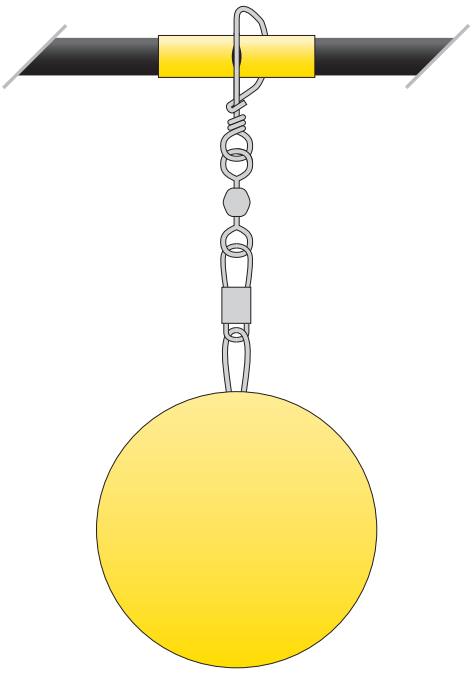
Cable Bobbers

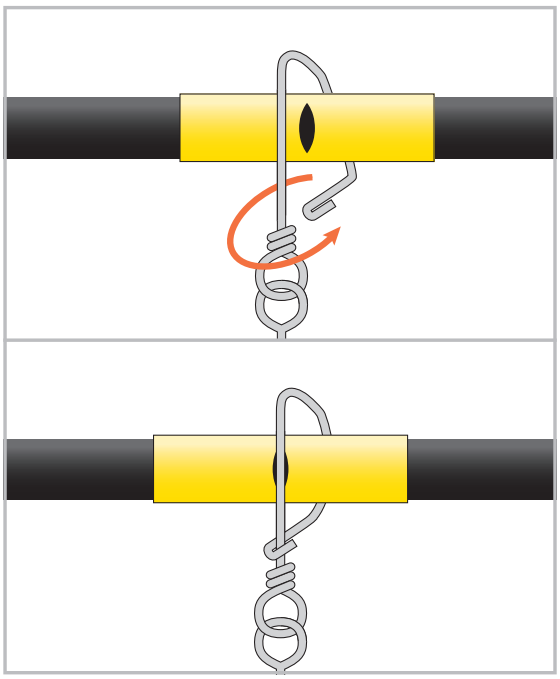
The cable bobbers are used to assist with the cable management. They are designed to keep the cable close to the surface of water to minimize drag on the vehicle. The bobbers are also used to aid in navigation of the vehicle by giving the driver a sense of the vehicle's location.

Attaching Cable Bobbers

On the watertight connector cable there are yellow cable bobber attachment indicators. Pinch the end of the cable bobber to open, loop over the indicator and line up with the slit. Pinch again to secure.

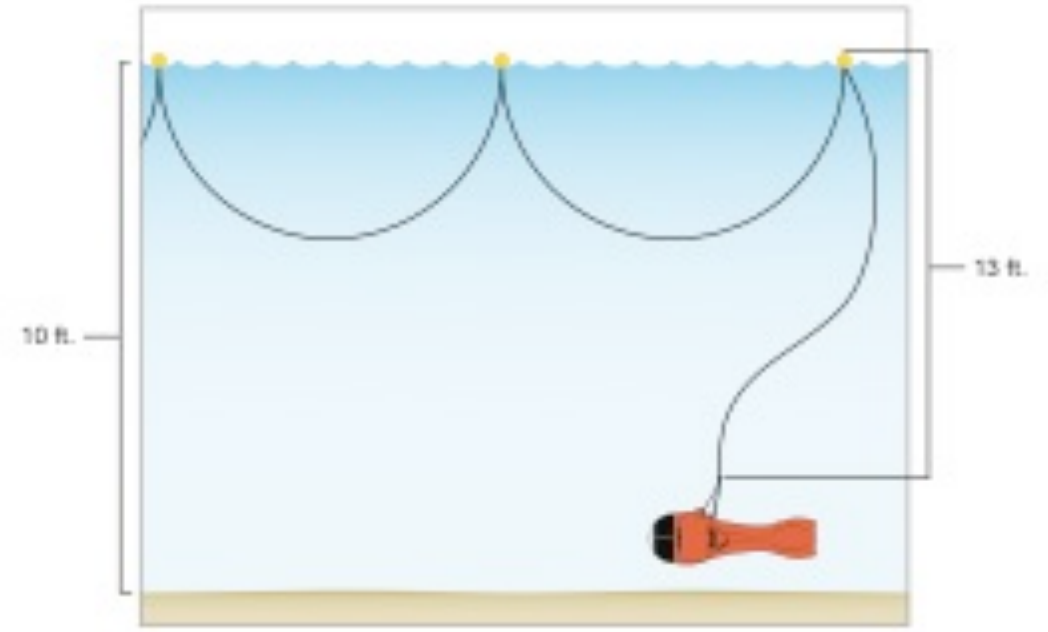
Please use caution when attaching for sharp ends.





Placement of Cable Bobbers

To minimize vehicle drag, the cable bobbers should always be placed a few feet above your desired depth. For example, if you are planning to reach a depth of 10 ft., you would begin placing your bobbers at the first yellow indicator on the watertight connector cable past 10 ft. from the vehicle (see figure above). Then, place bobbers at the indicated locations following the first one. Likewise if you are planning a depth of 50 ft., your first bobber will be located around 55 ft. from the vehicle.



Maintenance

Propellers

1. Before and after water use: Check the left, right and back propellers for debris.
2. If debris is present, turn off vehicle before cleaning.
3. Carefully clean out, making sure not to damage propellers.

After Water Care

1. Make sure the HydroView is turned OFF.
2. Completely submerge the vehicle in fresh water.
3. Remove from fresh water and stand on side to drain.
4. Wipe vehicle down, using a microfiber lens cleaning cloth.
5. Unscrew watertight connector from the topside box.
6. Safely store HydroView back in provided case.

NOTE: Make sure to rinse your vehicle thoroughly to prevent any harmful organisms from cross contaminating the waters and possibly infecting them during vehicle use.

Condensation

If condensation is present inside vehicle and it was within the temperature operating range of 0° Celsius/32° Fahrenheit to 35°Celsius/95° Fahrenheit, please contact your service representative 508.676.1000 for assistance.

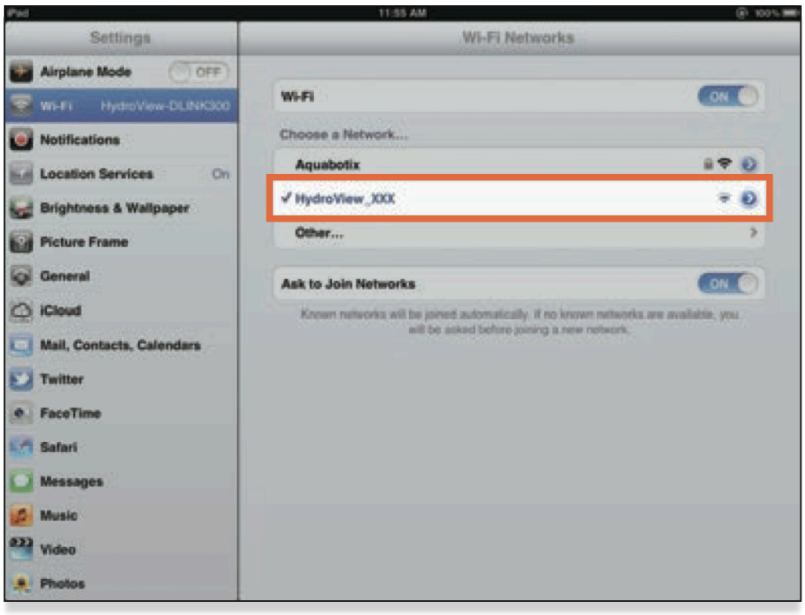
CHAPTER 2 – SOFTWARE APPLICATIONS

The HydroView Applications are used to control the movements and functions of your vehicle. Please take the time to carefully read through the manual before driving your vehicle.

How to Download & Connect

Download only required for initial setup. To download our free application, make sure you have access to the internet. Then, follow these steps:

1. Go to our website at: http://www.aquabotix.com/support.php and click downloads for a link to our app or visit the iTunes Store and search for HydroView Pro.
2. Click install application.
3. Sign in using your existing apple ID or create a new apple ID.
4. The application will start installing.
5. When you are ready to drive the vehicle, turn on the topside box. The vehicle's lights will turn on then shut off. Then, they will continuously blink until you open the application.
6. Click your settings icon.
7. From here, click Wi-Fi and make sure you are connected to the HydroView's network, which will end with the last 3 digits of your vehicle's serial number.



8. Return to the home screen and press the HydroView application icon. A splash screen will appear while the iPad is connecting to the vehicle.

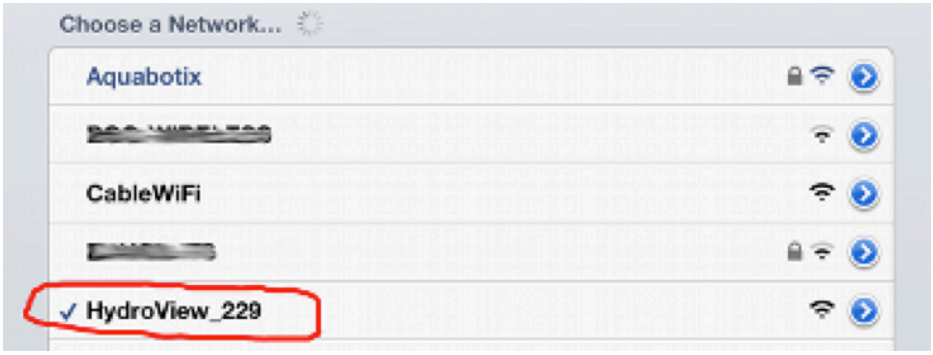
9. Once connected, you are ready to explore the underwater world!

> **IMPORTANT:** You must always choose HydroView's wireless signal as your network.

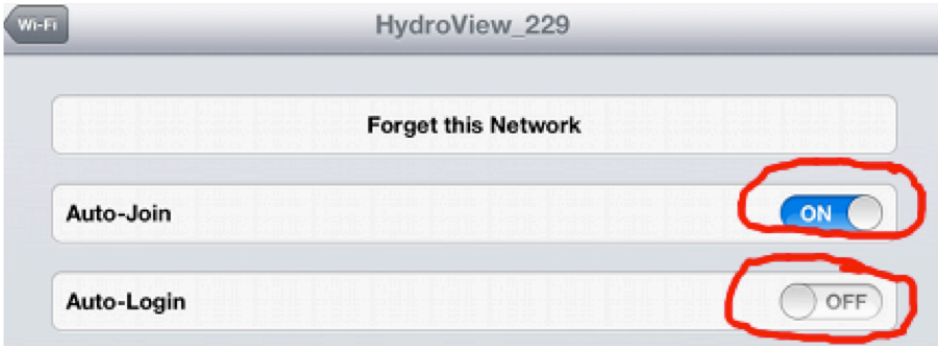
Important for users using the iPad Application: You must ensure that your Wi-Fi network details are setup correctly for connectivity. To check the settings:

1. Go to the settings menu – Wi-Fi

2. Select the HydroView wireless signal and tap on the blue arrow to open the network details.



3. Turn Auto Join to On and Auto Login to Off



APP CONTROLS

Please visit our website for the latest updates on software applications as they are updated regularly.

http://www.aquabotix.com/support_manuals.php

Saving Photos and Videos to Your iPad

Make sure that the HydroView is powered on. Click on the photo or video tab at the bottom of the application screen. You can toggle between your photos and videos using the buttons appropriately labeled at the bottom of the app. Click the green arrow to download and image or the red x to delete an image.

How do I get my photos and videos off the iPad?

Photos and videos saved to the iPad can then be saved to a computer by using iPhoto (for a Mac) or by plugging in the iPad and selecting 'Import Pictures and Videos' from the pop up (for Windows).

How to Download & Connect

Download only required for initial setup. To download our free application, make sure you have access to the internet. Then, follow these steps:

1. Visit www.aquabotix.com/support.php and click on “downloads”.
2. Click on “Install HydroView Application for PC”.
3. After the application has finished downloading, select a save location if you don’t previously have a default download folder.
4. Unzip the folder into your desired location.
5. When ready to drive the vehicle, turn on the topside box. The vehicle’s lights will turn on then shut off. Then, they will continuously blink until you open the application. On PC open your wireless networks and choose HydroView’s network, which will end with the last 3 digits of the vehicle’s serial number.
6. Open the application by double clicking the HydroView icon in the folder you saved it to. A splash screen will appear while the computer is connecting to the vehicle.
7. Once connected, you are ready to explore the underwater world!

APP CONTROLS

Please visit our website for the latest updates on software applications as they are updated regularly.

http://www.aquabotix.com/support_manuals.php

CEO Guarantee

At Aquabotix, our customers come first. If you are not completely satisfied with your Aquabotix product or service, please contact me at ceo@aquabotix.com or by calling 508.676.1000.

Thank you, President and CEO Durval Tavares

Registration

To register your HydroView, please visit:
www.aquabotix.com/support_registration.php

For technical assistance or to report a problem, please contact Aquabotix directly at 508.676.1000 or support@aquabotix.com

FAQs

What do I do if the vehicle's battery dies while in the water?

If this occurs, pull your vehicle to the surface using its cable.

What do I do if the Wi-Fi isn't showing up on the iPad settings?

Turn off the topside box and turn back on. Try to locate the Wi-Fi on your iPad. If still not showing up after a few times of trying, contact Aquabotix.

How do I know my vehicle is ready to connect to the Wi-Fi?

The HydroView's LED lights will turn on then shut off. Then, they will continuously blink until you open the application. If the lights start off as dim and then proceed to continuously get brighter, please contact Aquabotix by calling (508) 676-1000 or email us at support@aquabotix.com.

What do I do if my cord gets tangled?

Cable bobbers should assist with letting you see when your cord does get tangled. In the chance that it does, retrace your vehicles path to untangle. If that doesn't work, gently pull it out of the water by the cord and untangle.

How do I get my HydroView out of the water?

Grab the watertight connector cable and pull the vehicle up. This cable is strong and won't detach from the vehicle.

Where do my photos and videos get stored after I record them?

All photos and videos are stored onboard the HydroViews' memory card.

iPad: Photos and Videos get stored on the vehicle, which you can then download from the iPad application to your video album on your iPad.

PC: Photos and Videos get stored on the vehicle, which you can then download from the PC application. From there, you can download the videos to watch or images to view.

How long does my vehicle run for?

Your vehicle will run for about 2-3 hours before requiring recharging, depending upon your speed and use of lights during use.

FAQs

How long does it require to recharge the battery completely?

It requires 12 hours.

What are the system requirements for my iPad or PC?

Windows 7 or later, Mac Version 10.9 Mavericks, iOS 4.2.1 or later

How do I download the application?

iPad: Go to the iTunes store and search for HydroView Pro or visit our website at www.aquabotix.com/support.php.

PC: Go to www.aquabotix.com/support.php and click on downloads. The instructions will be located there.

What do I do if I get a scratch on the dome of the vehicle?

The products lenses are made of acrylic. If there are some scratches present, acrylic polish can remove them. If your lens is cracked, we have replacement lenses for purchase. When storing your lens, remember to use a cloth or some form of cover to avoid scratching.

CUSTOMER SERVICE

To contact customer support, please call (508) 676-1000 or email support@aquabotix.com

HydroView PRO One Year Limited Warranty Certificate

Aquabotix warrants that, under normal use and service, the HydroView will be free from defects in material and workmanship for one year from the date of purchase by the original purchaser.

If Aquabotix receives, during the applicable warranty period, notice of defect in any product which is covered by Aquabotix's warranty, Aquabotix shall either replace or repair the product at Aquabotix's discretion.

If Aquabotix is unable to repair or replace, as applicable, a defective product which is covered by Aquabotix's warranty, Aquabotix shall, within a reasonable time after being notified about the defect, refund the full purchase price of the product.

Aquabotix shall have no obligation to repair, replace or refund the purchase or product until the customer submits an RMA form and returns the defective product to Aquabotix.

Warranty does not cover the following: accidental damage, damage caused by abuse or misuse, damage caused by vehicle depths greater than vehicle rating, damage caused to other vehicles, ships, people etc. due to accidental or purposeful driving, damage caused to topside box and battery charger from submerging in water, damage to iPad, iPhone, Android device or computer, cable damage from normal use or cutting, improper maintenance, incorrect assembly, or damage due to incorrect power connection as described in the user manual.

Consumable items including LED lights and batteries are specifically excluded from the warranty. Items subject to normal wear and tear include, but are not limited to, the lens and the outer shell which are only covered for defects in workmanship or materials.

Opening the vehicle's dome automatically voids this warranty.

Claims for damage, shortage or errors in shipping must be reported within three (3) days following delivery to the customer. Aquabotix is not responsible for returned items lost or damaged during shipping.

A copy of the dated receipt or bill of sale from the original end user purchase is required to determine coverage.

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.